the Southern Literary Messenger for Dec. THE DEAD SEA.

EY E. W. E. CANNING.

lost Gomerrali, in a sea of fire.

Dr. Lardner's Fifth Lecture.

Now it may be asked what charm there is in a circular orbit which renders it more respectable for the planets to move in them than in ovals like their wayward companions. The Sun, in the first place. being in the centre of the circular orbit is always nearly equi-distant from the planet, so that the temperature of its surface, so far it is affected by distance, is nearly uniform; there being no extraordinary augmentation or diminution of distance so that there are no very serious extremes of heat and cold.

But with respect to the Comets, they move in orbits which at one time cause them to approach very near the Sun, and at another drive them off to an inconceivable distance into the realms of space. Thus the extremes of heat and cold which prevail at the extreme points of their orbits gousbe of intense severity. Newton, who first delivered an intelligent and clear theory of cometary motion, about the time of the publication of his Principia in the year 1680, witnessed the appearasce of a splendid comet which spread alarm through out Europe, and claimed the most careful observation of astronomers throughout the world. He calculated accurately its course around the Sun, and found that after rushing into the Solar System from the remote regions of the Universe it passed round the Sun, approaching it so nearly that the distance between them at its nearest point was 166. times less than the distance of the Earth from the Sun. The heat which the Comet at this point received from the Sun, he ascertained to be 26,000 times greater than that of our hottest summer. supposing that its calorific rays act by the same laws as upon the surface of the Earth. He showed that the temperature of the Comet in that position must be nearly the same as that of r d hot iron, so that no ordinary substance could remain solid for a moment, while all organic substances must be instantly destroyed. Indeed it is the opinion of many that the constituent parts of the Comets themselves necessarily pass through the three states of a liquid, solid, and vapor. While at then perihelion they may be, as we know many of them are, mere vapor: as they recede they are gradually converted to liquids until at their aparlion they become solidified: just as water exists in the three states of steam, water and ice.

But we are not bastily to assume that when a Comet gets to its extreme distance from the Sun, which, as will be hereafter shown, is inconceivably great, the cold is so very intense, as this depends entirely on the magnitude of the comet. For instance Newton calculated, in 1680, teat if the vol ume of the Comet be equal to that of the Earth.

of Newton's Principla, the question of cornets at-reacted great attention. His new theory of graviion had just been promulged and at first of tained

They, however, made computations sufficient to

her resource presented itself. They could search he records of the past and ascertain the times in comet had previously appeared. Whisn, an ingenious mathematician, found by a series itions that this comet of 1680 was, at the ime of the Mosaic Deluge, in a position which made it probable that it was chosen as the instrunest in the hands of God for producing that wonderful phenomenon. He explained and supported his theory with great learning and acuteness Hit extended his calculations back, period after period, and showedopon tolerably strong grounds that there is reason to believe that this comet was at such a listance from the Earth that it would exert an atraction so strong as to produce the phenomena ecorded in the Mosnic account of the Deluge. If u refer to the sacred record you will find it stated hat the Earth was overflowed not by the effect of the rains solely, but that the 'foomtains of the great deep were broken up'—that is of the intersection of the factor of the sall waters of the Earth; that the water issued to calculate the distance of Jupiter and Salle. All these—what are they but learn power? Suggestive as Nature always is, man is ever slow to take her hints.

I will now attempt to explain the medel of the common engine. The power which causes the from assures in the surface and thus proved far more overwhelming than the ordinary rains could

scribed in the Holy Records. This is all very beauitst place in order that a body should produce a lade, by attraction, in the waters of the Earth it is ecessary that it should be present, and at a certain fistance from the mass of water. I am not disbosed to dispute that the Comet might have een at such a certain distance; but another thing s necessary. The attracting body must not only se present, but for a certain length of time, to prouce this effect—a period susceptible of calculation.
f instead of moving is a circle, like the moon, the ody shoot by with the velocity of a comet, there on be produced no tide, not because there is not sufficient attraction, but because it is not present or a sufficient length of time. It has been clearly demonstrated that the comet of 1680, if it was in

They, however, made computations sufficient to conder it probable that this comet revolved about the Sun in a very oblong oval in the space of 575 was effected by Charrault, a distinguished mathematical part of the expiration of this period, they of course could not expect to verify their calculations by awaiting its re-appearance, nor will any of the present generation be alive to witness it. But any her resource tracested itself. They could see that the calculation.

Two works the first difficulty that we calculation. This work the first difficulty that we calculation. This was effected by Charrault, a distinguished mathematical part of the work: he found the formule by which the Sm: it cannot go on without developing this immense mechanical power. Now, if man were not the dillest of animals—if things did not transpire daily under his very eyes, which he neither saw nor a large of the specific daily under his very eyes, which he neither saw nor a large of the calculation.

Two specified its this comet revolved about the specific daily to be steam into water. It matters not how this evaporation be produced, whether by a lamp, a furnace or by the heat of the sum in the specific day of the calculation. This work the first difficulty that we calculation. This was effected by Charrault, a distinguished mathematical part of the work: he found the formule by which the Sm: it cannot go on without developing this immense mechanical power. Now, if man were not the difficulty that was effected by Charrault, a distinguished mathematical part of the work the first difficulty that we calculation. This were the calculation that the sum of the space of 575 was effected by Charrault, a distinguished mathematical part of the work the first difficulty that were converting the steam into water.

It matters not how this evaporation be produced, whether by a lamp, a furnace or by the heat of the work is a furnace or by the heat of the work is a furnace or by the heat of the same than the calculation.

It is not not converted to th

ompleted, lest the comet should noticipate the on it for every degree of motion for 150 years." piston to ascend and descend is the force of The labor was finally completed. On the 14th upon the principle we have just explained.

comet would reach its perihelion on the 4th of April, instead of the 18th. This prediction of Clairauit, when it was anneunced, was accompanied by this remarkable observation: In said, with the diffidence that characterizes the announces with the diffidence that characterizes the announces ment of the discovered of the engineer was great when he saw his engine at once, without any cause, begin to work with twice as great power as before, and it was taken to pieces and the cause finally discovered. After this a leak was always left in the condense; for man will, that "the comet ought to arrive at its nearest point on the 4th of April, provided we have taken into the account all the essential attractions. We have the steam is let in above it, forcing it down; it is the position assigned to it by Whiston, passed so but not those of the Earth and Mars, which, how-quickly as to produce none of the effects which he ever, we know to be so slight as to make no great piston; and this process is continually repeated.

So the effects which he ever, we know to be so slight as to make no great piston; and this process is continually repeated. In the earliest engines that were used, the steam

(which as we brought a new member, though a strange one, into some other planet yet undiscovered, which may by having stop-cocks provided, which were alteraat its searcest point of approach, (which as we brought a see member, monghing strange one, into some other planet yet wastscorered, which may by having stop-cocks produced by a lever. These were have said is 166 times less than the distance of the the Solar System. He had already computed the exert an influence on the comet's path." Within a stely opened and closed by a lever. Earth from the Sun,) would be so great that a pe- time of its revolution, and found that it was 375 two or three and twenty years after this astonish- casily managed by boys, to whose lot it fell to per-

treme accuracy. Although they carefully observed this comet's path, still the perton of it which was visible could not be calculated so as to compute the immense portion of the orbit which was in able to the control of the orbit which was in able to the control of the orbit which was in able to the control of the orbit which was in able to the control of the orbit which was in able to the control of the orbit which was in able to the control of the orbit which was in able to the control of the orbit which was in able to the control of the orbit which it is immensible to be an orbit which it is immensible to be a control of the orbit which was in able to the control of the orbit which it is immensible to be a control of the orbit which was in able to the control of the orbit which it is immensible to be a control of the orbit which was in able to the control of the orbit which was in able to the control of the orbit which was in a labor of which it is immensible to be a control of the orbit which was in a labor of which it is immensible to be a control of the orbit which was in a labor of which it is immensible to the control of the orbit which was in a labor of which it is immensible to the control of the orbit which was in a control or orbit which was in the control or orbit was a control or a labor of which it is impossible to form any con-ception. In this work the first difficulty that uc-er is produced in destroying the evaporation—in

Two persons were found possessed of a scient dreamed of their existence, how could evapora tine spirit, which induced them to sacrifice a por-tion of their health and lives in this labor. One before his very face, and yer the steam-engine not of them was the French astronomer, Lalands, who be discovered until the middle of the last century indertook the arithmetical part of the calculation t But the evaporation that is constantly going or his assistant, singular as it may appear, was a from the surface of the eccan—is this evailable for budy. Madam Lepaute, the wife of a watchmaker.

They accordingly proceeded: and as the year 1755 water power used in criving his mills, and proapproached, you may judge what was the excite- pelling his machinery, all the beautiful streams ment of the astronomical world, and how great and leaping cascades which please the eye—what was the anxiety of the two to get their calculations are these but the drops returned from the clouds. the legitimate result of the evaporation which the nuclication, by its appearance. We have remaining a manuscript of Lalande in which he says:

"During six months we calculate from morning your ships—the noble Hudson, which carries to to night, and even at meals. I have contracted a sovere illness by my I-bors, and without the as- State. All these—what are they but steam power?

common engine. The power which causes the piston to ascend and descend is the force of steam more overwhelming than the ordinary rains could have possibly been.

Whiston argued that if the comet were within a certain distance of the Earth it would exert an ascretain distance of the Earth it would appear before the french Institute, and read the paper announcing the theory of the tube, the next thing is to remove the top of the tube, the next thing is to remove the top of the tube, the next thing is to remove the top of the tube, the tion than the mere coldness of the surrounding wa After three weeks had elapsed, which he had ter, was for a long time unknown, and was at last pent in revising his calculations, and during which discovered by the increst accident. In the early he had discovered some slight errors, he again up history of steam power it chanced that the conpwared before the Institute and announced that the | denser of an engine sprung a leak and the water

calculated the affractions of Jupiter and Saturn; then, by a separate arrangement, drawn off into

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